

Electrical Engineering and Biomedical Engineering

September 2021 (for students entering Year 1 in September 2018)

Year 2

Term A

| | |
|-----------|---|
| AM 2270A | Applied Mathematics for Engineering II |
| BME 3201A | Fundamentals of Biomedical Engineering Design |
| CS 1027A | Computer Science Fundamentals II |
| ECE 2205A | Electric Circuits I |
| ECE 2240A | Electrical Laboratory |
| ECE 2277A | Digital Logic Systems |

Term B

| | |
|---|--|
| AM 2276B | Applied Mathematics for Electrical & Mechanical Eng. III |
| ECE 2231B | Introduction to Electronics |
| ECE 2233B | Circuits and Systems |
| ECE 2236B | Magnetic Circuits and Transmission Lines |
| ECE 2242B | Principles of Design in Electrical Engineering |
| Writ 2130G | Building Better (Communication) Bridges |
| One 0.5-credit non-technical elective * | |

Year 3

Term A

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|------------|---|
| AM 3415A | Advanced Applied Mathematics for Electrical Engineering |
| Biol 1001A | Biology for Sciences I |
| ECE 3330A | Control Systems |
| ECE 3332A | Electric Machines |
| ECE 3337A | Electronic Circuits |
| SS 2141A | Applied Probability and Statistics for Engineers |

Term B

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|------------|--|
| Biol 1002B | Biology for Sciences II |
| ECE 3331B | Introduction to Signal Processing |
| ECE 3336B | Electromagnetic Theory |
| ECE 3370B | Communication Electronics I |
| ECE 3375B | Microprocessors and Microcomputers |
| ECE 3399B | Principles and Practices of Design of Electronic Systems |

Year 4

Term A

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|--|------------------------------------|
| Biochem 2280A | Biochemistry and Molecular Biology |
| BME 3301A | Neural Systems Engineering |
| ECE 4455A | Biomedical Systems Analysis |
| Physiol 2130 | Human Physiology |
| 0.5 credit Biomedical Science elective | |
| 0.5 credit Healthcare non-technical elective | |

Term B

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|---|--|
| BME 3303B | Cellular Systems Engineering |
| MME 4469B | Biomechanics of the Musculoskeletal System |
| Physiol 2130 | Human Physiology |
| Two 0.5-credit Biomedical Science electives | |
| One 0.5-credit Healthcare non-technical elective | |
| One 0.5-credit Open elective (taken in either term)** | |

Non-technical Electives

Students are required to complete 1.5 credits of non-technical electives as part of the program.

- *The first 0.5 credit can come from the approved non-technical elective list (<https://www.eng.uwo.ca/undergraduate/upper-year/electives.html>).
- The remaining 1.0 credits must come from the following Healthcare Non-technical Elective list.

Students must pay attention when selecting the first 0.5 credit to ensure appropriate prerequisite courses are completed for the non-technical electives below.

Healthcare Non-technical Electives

| | |
|---------------------------|------------------------------------|
| Anthropology 2290F/G | Cultures of Health and Healing |
| Economics 2169F/G | Economics of Health Care |
| History 2195A/B | Epidemics in North America |
| Law 3101A/B | Healthcare Law |
| Philosophy 2071E | Biomedical Ethics |
| Philosophy 2072F/G | Bioethics and Disability |
| Philosophy 2715F/G | Health Care Ethics |
| Political Science 2276F/G | The Politics of Health Care |
| Religious Studies 2239F/G | Christian Bioethics |
| Sociology 2179A/B | Promotion of Community Health |
| Sociology 2180A/B | Development of Health Inequalities |
| Women's Studies 2244 | Women and Health |
| Writing 3222F/G | Advanced Healthcare Communication |

Technical Elective List:

Some technical electives may not be offered in a given academic year. Consult the Department for accurate listing. Courses that do not appear on the list below require special permission from the Department.

Biomedical Sciences Electives

| | |
|--|---|
| Biochemistry 3385A/B | Human Biochemistry |
| Biochemistry 3386A/B | Clinical Biochemistry |
| Biology 2382A/B | Cell Biology |
| Biology 2581A/B | Genetics |
| Chemistry 2213A/B | Organic Chemistry |
| Chemistry 2283F/G | Organic Chemistry II |
| Communication Sciences and Disorders 4417A/B | Hearing Science |
| Health Science 2300A/B | Systemic Approach to Functional Anatomy |
| Health Science 3300A/B | Anatomy of the Human Body |
| Medical Science 4931F/G | Selected Topics in Medical Science |
| Physiology 3140A/B | Cellular Physiology |

Year 5

Term A

| | |
|-----------|--|
| BME 4400 | Biomedical Engineering Research Thesis (1.5-credit course) |
| ECE 4416 | Electrical/Computer Engineering Project |
| ECE 4429A | Advanced Digital Signal Processing |
| ECE 4437A | Communications Theory |
| ECE 4445A | Introduction to Digital Image Processing |
| ELI 4410F | Engineering Ethics, Sustainable Development and the Law |

Term B

| | |
|---|--|
| BME 4400 | Biomedical Engineering Research Thesis (1.5-credit course) |
| ECE 4416 | Electrical/Computer Engineering Project |
| ELI 3200B | Engineering Innovation I: New Venture Creation |
| Two 0.5-credit BME technical electives | |
| One 0.5-credit ECE technical elective | |
| https://www.eng.uwo.ca/undergraduate/upper-year/next.html | |

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| Psychology 2220A/B | Intro. to Behavioural & Cognitive Neuroscience |
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Biomedical Engineering (BME) Electives

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|----------------------------|--------------------------------------|
| CBE 4421A/B | Intro. to Biomaterials Engineering |
| ECE 4438A/B | Advanced Image Processing & Analysis |
| Medical Biophysics 3507F/G | Analysis of Oxygen Transport |
| Medical Biophysics 3645A/B | Intro. to Biomedical Optics |
| Medical Biophysics 4475A/B | Medical Imaging |
| Physics 4662A/B | Magnetic Resonance Imaging |
| Physics 4672A/B | Radiological Physics |

**Open Electives

For the course credit designated as an “open elective”, students may select any course from the lists of: Biomedical Science electives; BME technical electives; ECE technical electives; Healthcare non-technical electives; or Faculty of Engineering approved non-technical electives.